

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

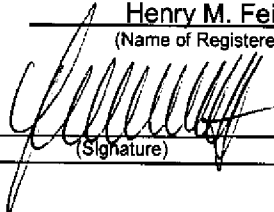
Docket No.: KLOTZ-3

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| In re Application of: |) |
| BERND KLOTZ |) Examiner: Huson, Monica A. |
| Appl. No.: 10/789,412 |) Group Art Unit: 1732 |
| Filed: February 27, 2004 |) Confirmation No: 5250 |
| For: METHOD AND APPARATUS FOR MAKING FLAT MOLDED ARTICLES |) |

BRIEF OF APPEAL

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

S I R:

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| (Name of Registered Representative) | |
|  | 3-19-2007 |
| (Signature) | (Date of Signature) |

This is an appeal from the final rejection of claims 1-6, 12, 13 by the Primary Examiner. The Brief is being filed under the provisions of 37 C.F.R. §41.37. The amount of \$500.00 to cover the requisite fee set forth in 37 C.F.R. §41.20(b)(2) is enclosed.

The Commissioner is hereby authorized to charge fees which may be required, or credit any overpayment to Deposit Account No. 06-0502.

(1) REAL PARTY IN INTEREST

The above-referenced patent application has been assigned to Krauss-Maffei Kunststofftechnik GmbH, having a place of business at Krauss-Maffei-Strasse 2, 80997 München, Germany, the real party in interest by virtue of an assignment recorded on May 28, 2004 at reel 015413, frame 0796.

(2) RELATED APPEALS AND INTERFERENCES

There are no and there have been no related appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

(3) STATUS OF CLAIMS

The following claims are in the appeal proceedings:

Claims 7-11 are withdrawn.

Claims 1, 2, 4-6 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Pat. No. 5,776,407 to Takeda.

Claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Takeda in view of U.S. Pat. No. 6,328,920 to Uchiyama et al.

Claims 12-13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Takeda in view of U.S. Pat. No. 5,340,528 to Machida et al.

(4) STATUS OF AMENDMENTS

No amendment has been filed an amendment under 37 C.F.R §1.116 after issuance of the final rejection.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

The present invention, as set forth in claim 1, is directed to a molding process by which in a first phase a cavity of a positive mold is filled with plastic material (paragraph [0029], Claim 1, lines 3, 4), and in a second phase further material is fed into the cavity such as to allow the cavity to expand until the cavity has a size for producing a plastic article at a defined thickness (paragraph [0031], Claim 1, lines 5-7). Subsequently, the positive mold is closed by moving the half-molds together until reaching a residual distending opening while still applying the clamping force to thereby maintain the plastic material compressed (paragraph [0037], Claim 1, lines 8, 9).

Claim 3 recites the control of the additional supply of plastic material into the cavity and the resultant expansion of the cavity in dependence on a distending motion of the positive mold.

Claim 6 recites the execution of the molding step at constant clamping force (paragraph [0037]).

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Issue 1-Whether claims 1, 2, 4-6 are patentable under 35 U.S.C. §102(b) over Takeda?

Issue 2-Whether claim 3 is patentable under 35 U.S.C. §103(a) over Takeda in view of Uchiyama et al.?

Issue 3-Whether claims 12, 13 are patentable under 35 U.S.C. §103(a) over Takeda in view of Machida et al.?

(7) ARGUMENT

Issue 1-Whether claims 1, 2, 4-6 are patentable under 35 U.S.C. §102(b) over Takeda?

Claim 1 on appeal sets forth three relevant steps involved in making a molded plastic article:

- a) fully filling the cavity with plastic material, while maintaining a size of the cavity constant;
- b) adding plastic material so as to distend the positive mold in opposition to the clamping force until the cavity of the positive mold expands to reach a defined size for producing a defined article thickness;
- c) closing the positive mold until reaching a residual distending opening and molding the plastic material into a plastic article while applying the clamping force to thereby maintain the plastic material compressed.

With respect to step a), the Examiner referred to col. 8, lines 21-22 of Takeda. This passage reads as follows:

With the pressure adjusting step, even after the mold cavity 34 has been filled with resin, [the injection step with]

This passage merely sets forth that the mold cavity is filled with resin. Nothing is revealed here about a filing of the cavity while maintaining the size of the cavity **constant**. In fact, the Takeda disclosure teaches the opposite. When continuing the passage referred to by the Examiner, Takeda describes that *"the injection step with the heated cylinder unit 1 continues on until the screw 6 has been advanced to the predetermined position, or to the forward limit, and hence resin supply from the heated cylinder unit 1 to the mold assembly 31 also continues."* In other words, during the filing and pressure adjusting phases the cavity in Takeda varies during inflow of resin. This is because the movable

plate (46) of the fixed mold (32) and the movable mold (33) are displaced away from the base member (38) of the fixed mold (32) (cf. col. 8, lines 28-31). Indeed, Takeda expressly notes that the cavity (34) varies, as set forth in col. 9, lines 42-44, where it is described that “[A]t the time of completion of the pressure adjusting step, the volume of the mold cavity 34, [] is **not** constant”. [emphasis added]. Only after conclusion of the following measuring step does the cavity remain constant (cf. col. 9, lines 44-48, where it is stated that “in the subsequent measuring step, [] a constant amount of resin remains in the mold cavity 34”. Reference is also made to col. 3, lines 32-40, stating that when “the pressure adjusting step is completed, the amount of mold material inside the mold cavity is not constant” and that only when the gate is closed does “a constant amount of mold material [remain] in the mold cavity.”.

Thus, Takeda fails to disclose step a) of claim 1, as set forth above.

With respect to step b), the Examiner referred to col. 8, lines 22-49 of Takeda. This passage describes the pressure adjusting phase during which resin continues to flow into the cavity so that due to the pressure of the resin in the mold assembly, the movable plate (46) and the movable mold (33) are displaced away from the base member (38) of the fixed mold (32), against the mold clamping force applied by the mold clamping device. As a result of the displacement, an opening (A2) is established. Thus, while the cavity indeed expands during this phase in opposition to the clamping force, the volume of cavity does not reach a **defined size** to produce a defined article thickness. Rather, as noted above, the volume of the cavity may vary and is dependent on an equilibrium between the pressure of the resin in the mold assembly and the mold clamping force. As described in col. 8, lines 42, 43, the opening “is greater the more the resin supplied to the mold assembly”. Thus, the pressure adjusting step does not result in the realization of a “defined size” of the cavity. Indeed, a defined cavity size of the cavity is realized by Takeda only during the subsequent measuring step, when the gate (77) closes (cf. col. 3, lines 18-22). The measuring step involves however

a pre-compression of the resin content in the cavity and a volume reduction of the cavity to reach the defined size.

In other words, Takeda also fails also to disclose step b) of claim 1, as set forth above.

With respect to step c), the Examiner referred to col. 9, lines 19-41 of Takeda. In addition, the Examiner refers to col. 3, lines 15-25 (cf. page 5, 3rd paragraph, of the Final rejection under the heading "Response to Arguments"). More specifically, the Examiner contended that since "the mold halves are closed toward each other and [in] a subsequent step [] are closed further so that they touch", the presence of a "residual distending opening" is disclosed to meet the claimed limitation. It is appellant's contention that the Examiner failed to fully appreciate the claim limitation of step c).

A close reading of these Takeda passages merely shows a description of the measuring step in which the movable plate (46) is closed against the base member (38) to allow escape of excess resin, and that at the end of the measuring step, the cavity has a defined size. An opening (A3) is hereby formed between the movable plate and the base member. In the subsequent compression step, the movable plate and the base plate are closed "*until they abut together*" (cf. col. 9, lines 34-27). The Examiner appears to equate the provision of the opening (A3) with the residual distending opening, as set forth in claim 1. This interpretation by the Examiner ignores the subject matter of the whole claimed limitation which not only relates to the provision of an opening but also sets forth that the plastic material is molded into a plastic article in the **presence** of the residual distending opening. In other words, the finished article is made in the compression phase while a distending opening still remains. As a consequence of the residual distending opening, the half-mold (7) can be floatingly supported and the plastic mass can be maintained in the cavity under pressure.

In fact, Takeda teaches away from the provision of such a residual distending opening because the movable plate and the base member are closed, i.e. touch one another in the absence of an opening in order to make the article.

For the reasons set forth above, it is applicant's contention that Takeda neither teaches nor suggests the features of the present invention, as recited in claim 1.

Claims 2, 4-6, which depend from claim 1, are considered allowable by virtue of their dependencies. Claim 6 is further considered allowable on its own merits as it recites other features of the invention neither taught nor suggested by the Takeda reference. Claim 6 recites the execution of the molding step at constant clamping force. The Examiner referred to col. 9, lines 38-42 to show the disclosure of this subject matter in Takeda. This passage states as follows:

*The amount B of compression is equal to an opening A3
between the base member 38 and the movable plate 46 at
the point in time of completion of the measuring step.*

Apart from the fact that the meaning of "amount B" in this context and its correlation with the opening (A3) is unclear, a close reading of this passage merely appears to set forth that the clamping force is dependent on the spacing between the base member and the movable plate. A reference to the application of a constant clamping force is not disclosed.

It is therefore respectfully submitted that the rejection of claims 1, 2, 4-6 under 35 U.S.C. 102(b) as being anticipated by Takeda should be reversed.

Issue 2-Whether claim 3 is patentable under 35 U.S.C. §103(a) over Takeda in view of Uchiyama et al.?

Claim 3, which depends from claim 1, is considered allowable by virtue of its dependency. Claim 3 is further considered allowable on its own merits as it recites other features of the invention neither taught nor suggested by the Takeda reference in view of Uchiyama et al.

The Takeda reference has been discussed in detail under the previous heading and is not believed to be combinable with the teachings of the Uchiyama et al. reference.

Claim 3 sets forth that the additional supply of plastic material into the cavity and the resultant expansion of the cavity can be controlled in dependence on a distending motion of the positive mold.

The Uchiyama et al. reference discloses a molding process to make a two-component article by injecting a first plastic material into a cavity, and then opening the mold to expand the cavity into which a second plastic material is then injection. As described in col. 3, lines 30-34, Uchiyama et al. describe the provision of a mechanical system to operate the opening and closing of the mold. In contrast thereto, the expansion of the Takeda mold during the pressure adjusting step is realized by the continued introduction of resin into the cavity in order to force the movable plate and the movable mold away from the base member (cf. col. 8, lines 28-32). Simply substituting the expansion of the cavity by means of a mechanical system, as described in Uchiyama et al. would run counter to the express teaching in Takeda of establishing an equilibrium between the pressure of the resin and the mold clamping force and thus using the pressure adjusting step to control the pressure of the resin in the mold cavity.

The Examiner clearly failed to set forth how the Takeda reference can be modified to produce the present invention, without contradicting the disclosure of the Takeda reference and without "finding as to specific understanding or principle within knowledge of skilled artisan that would have motivated one with no knowledge of invention at issue to make combination in manner claimed." *In re Kotzab*, 55 USPQ2d 1313.

It is therefore respectfully submitted that the rejection of claim 3 under 35 U.S.C. 103(a) as being unpatentable over Takeda in view of Uchiyama et al. should be reversed.

Issue 3-Whether claims 12, 13 are patentable under 35 U.S.C. §103(a) over Takeda in view of Machida et al.

Claims 12, 13, which depend from claim 1, are considered allowable by

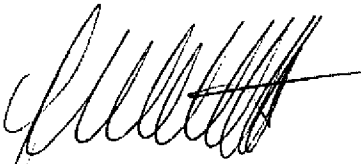
virtue of their dependencies.

It is therefore respectfully submitted that the rejection of claim 3 under 35 U.S.C. 103(a) as being unpatentable over Takeda in view of Machida et al. should be reversed.

CONCLUSION

For the above stated reasons, it is respectfully submitted that the rejection of the claims 1-6, 12, 13 issued by the Examiner on the references should be reversed.

Respectfully submitted,

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(8) CLAIMS APPENDIX

1. A method of making a molded plastic article, comprising the steps of:
 - closing a cavity of a positive mold by applying a clamping force;
 - fully filling the cavity with plastic material, while maintaining a size of the cavity constant;
 - adding plastic material so as to distend the positive mold in opposition to the clamping force until the cavity of the positive mold expands to reach a defined size for producing a defined article thickness;
 - closing the positive mold until reaching a residual distending opening and molding the plastic material into a plastic article while applying the clamping force to thereby maintain the plastic material compressed; and
 - removing the plastic article.
2. The method of claim 1, wherein the adding step is controlled in dependence on a distance traveled by an advancing screw.
3. The method of claim 1, wherein the adding step is controlled in dependence on a distending motion of the positive mold.
4. The method of claim 1, and further comprising the steps of measuring an internal pressure in the positive mold, and applying the clamping force in dependence on a profile of the internal pressure.
5. The method of claim 1, and further comprising the step of applying a higher clamping force upon the positive mold at a location closer to a sprue than at a location farther away from the sprue.
6. The method of claim 1, wherein the molding step is carried out at constant clamping force.

12. The method of claim 1, wherein the plastic article is a thick-walled, flat molded article.
13. The method of claim 1, wherein the plastic article is a disc.

(9) EVIDENCE APPENDIX

NONE

(10) RELATED PROCEEDINGS APPENDIX

NONE